

References lists

Attached to the review of *Thermal structure and drainage system of a small valley glacier (Tellbreen, Svalbard), investigated by Ground Penetrating Radar* by Baelum and Benn, submitted to the Cryosphere.

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A classic radioglaciological textbook [*Bogorodsky et al.*, 1985] is suggested as reference for Equation 2 and many other principles often cited in the text.

The paper from *Blatter and Hutter* [1991] provide useful insights on the thermal state of polythermal glaciers. This paper should be referenced when commenting the thermal structure of Tellbreen in the new Section 4.2

Pettersson et al. [2003] and *Gusmeroli et al.* [2010] investigated the thermal structure of the polythermal Storglaciären using similar methods described in this paper. Both studies used the radio-wave speed of 0.168 m/ns to estimate depth. *Gusmeroli et al.* [2010] measured radio-wave speeds of 0.17 m/ns and interpreted these to be typical for cold ice with some volumetric percentage of air. These studies could be referenced when justifying radio-wave speed applied for depth-conversion.

When inferring bed wetness from radar returns the authors should take into account examples from the recent radioglaciological literature. Here i list three different papers published in three different journals which might help improving the new section 4.3. These three studies are *Murray et al.* [2008] (West Antarctica); *Pattyn et al.* [2009](Alaska) and *Jacobel et al.* [2010] (East Antarctica).

References

- Blatter, H., and K. Hutter, Polythermal conditions in Arctic glaciers, *Journal of Glaciology*, *37*, 261–269, 1991.
- Bogorodsky, V. V., C. R. Bentley, and P. E. Gudmandsen, *Radioglaciology*, D. Reidel Publishing Company, Dordrecht, 1985.
- Gusmeroli, A., T. Murray, P. Jansson, R. Pettersson, A. Aschwanden, and A. D. Booth, Vertical distribution of water within the polythermal Storglaciären, Sweden, *Journal of Geophysical Research*, *115*, 2010, doi:10.1029/2009JF001539.
- Jacobel, R., K. Lapo, J. Stamp, B. Youngblood, B. Welch, and J. Bamber, A comparison of basal reflectivity and ice velocity in East Antarctica, *The Cryosphere*, *4*, 447–452, 2010.
- Murray, T., H. Corr, A. Forieri, and A. Smith, Contrasts in hydrology between regions of basal deformation and sliding beneath Rutford Ice Stream, West Antarctica, mapped using radar and seismic data, *Geophysical Research Letters*, *35*, doi:10.1029/2008GL033,681, 2008.
- Pattyn, F., C. Delcourt, D. Samyn, B. D. Smert, and M. Nolan, Bed properties and hydrological conditions underneath McCall Glacier, Alaska, USA, *Annals of Glaciology*, *50*, 80–92, 2009.
- Pettersson, R., P. Jansson, and P. Holmlund, Cold surface layer thinning on Storglaciären, Sweden, observed by repeated ground penetrating radar surveys, *Journal of Geophysical Research*, *108*, doi:10.1029/2003JF000,024, 2003.